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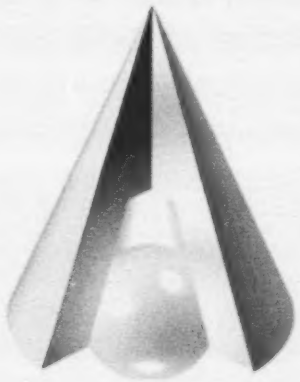
The Effect of Unemployment on Life Satisfaction: A Cross-national Comparison Between Canada, Germany, the United Kingdom and the United States



by Wen-Hao Chen and Feng Hou

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by

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Abstract

This paper investigates the effect of unemployment on life satisfaction from a comparative perspective. It also tests whether the link between unemployment and life satisfaction is moderated or reinforced by contextual unemployment across regions within a country—either through a negative spillover or a positive social-norm effect, or both. The results suggest that noticeable non-pecuniary costs are associated with unemployment in the four countries studied. Cross-national differences also emerged in the impact of the moderating factors. Others' unemployment, that is, overall regional unemployment, is a strong moderating factor of own unemployment in Canada and to a lesser extent in the United States; the effect is ambiguous in the United Kingdom and exacerbating in Germany. The results also support a negative spillover effect of others' unemployment on the employed in the United States and Germany, no spillover effect in the United Kingdom and, surprisingly, a positive overall spillover effect in Canada. Sensitivity testing further revealed that this Canadian anomaly was a phenomenon mainly in Atlantic Canada, not across the whole country.

Keywords: unemployment, subjective well-being, employment insecurity

Executive summary

Canadians are generally happier than people in the rest of the world, according to various surveys and polls. However, little is known about whether these positive feelings are shared by all populations, particularly by those with adverse labour-market outcomes. An increasing amount of research is attempting to relate objective employment status to subjective well-being. The main argument is that employment provides many non-material benefits—such as social relationships and identity in society—and unemployment involves the loss of these benefits and thus can lead to poorer subjective well-being. The extent of the negative effect of own unemployment may be further complicated or moderated by contextual unemployment—either through a negative spillover or a positive social-norm effect, or both—across regions within the country.

Using data from Canada, the United States, the United Kingdom and Germany, this study adds to the literature by examining the relationship between unemployment and life satisfaction from a comparative perspective. Three questions are addressed: (1) Does unemployment have a significant negative effect on well-being, and how does the effect differ across countries? (2) What is the relative impact or monetary value of being unemployed compared with other life events such as divorce or poor health? and (3) Is the well-being gap between the employed and the unemployed altered by aggregate unemployment in local labour markets, as suggested by the spillover and social-norm hypothesis?

The results suggest that noticeable non-pecuniary costs are associated with unemployment in all four countries. *Ceteris paribus*, the unemployed tend to have lower life satisfaction than the employed by about 0.3 standard deviations in Canada, the United States and the United Kingdom, and by a larger margin of 0.47 standard deviations in Germany.

Cross-national differences emerged in the impact of moderating factors. Others' unemployment (measured by the regional unemployment rate) is a strong moderating factor of own unemployment in Canada and to a lesser extent in the United States. This is consistent with the social-norm hypothesis. However, others' unemployment has an ambiguous effect in the United Kingdom and an exacerbating effect in Germany. The results support a negative spillover effect of others' unemployment on the employed in the United States and Germany, no spillover effect in the United Kingdom and, surprisingly, a positive overall spillover effect in Canada. Sensitivity testing revealed that this Canadian anomaly was a phenomenon mainly in Atlantic Canada, not across the whole country.

This paper also explores possible reasons behind the cross-national differences in both the observed employment–unemployment well-being gap and the moderating factors. Individuals' perceptions of job security and prospects play a crucial role. In particular, these perceptions explain why unemployed Germans had significantly lower predicted life satisfaction scores than their otherwise-equal peers in the three other countries. Moreover, the unique Canadian results on moderating factors may be driven by seasonal employment features, as well as by strong rural-to-urban migration in Canada's high unemployment regions.

1 Introduction

This paper investigates the effect of unemployment on subjective well-being from a comparative perspective, using data on reported life satisfaction as a proxy measure for individual well-being. It also tests whether the link between unemployment and life satisfaction is moderated by contextual unemployment—either through a negative spillover or a positive social-norm effect, or both—across regions within a country. In particular, this paper contributes to the literature by offering empirical tests for four countries in a systematic manner.

Canadians are generally happier than people in the rest of the world, according to various surveys and polls. For instance, the Gallup World Poll 2012 ranked Canada as the second happiest country of over 150 countries. Canada scored 7.7 on a 10-point life-satisfaction scale, behind only Denmark at 7.8.[1] The *2014 Better Life Index* of the Organisation for Economic Co-operation and Development (OECD n.d.) found that Canada had the third-highest life satisfaction (7.6 on a 10-point scale) among 34 member countries. Canada scored much higher than the OECD average of 6.6. While Canada's high overall performance in life satisfaction is well documented, little is known about whether such positive feelings are shared by all populations,[2] particularly those with adverse labour market outcomes. An increasing amount of research is attempting to relate objective employment status to subjective well-being. Existing studies, in particular, have paid attention to the well-being gap between the employed and the unemployed (e.g., Winkelmann and Winkelmann 1998; Frey and Stutzer 2002). The main argument is that employment provides many non-material benefits—such as social relationships or identity in society—and unemployment involves the loss of these benefits and thus can lead to poorer subjective well-being.

The literature suggests that the extent of the negative effect of own unemployment may be complicated or moderated by contextual influences at the local or regional level. Clark (2003), for instance, argued that the impact of own unemployment on well-being is reduced in high unemployment regions. The impact is reduced through a social-norm model, where unemployment is less stigmatized by relevant others in the same local labour market. Different hypotheses have been put forward to highlight the moderating role of institutional factors such as employment protections (Ochsen and Welsch 2012), labour market policies (Carr and Chung 2014) and the generosity of unemployment benefits (Di Tella, MacCulloch and Oswald 2003). None of these issues have been explicitly studied in Canada.[3]

The primary aim of this paper is to present the first evidence of the effect of unemployment on subjective well-being as well as of possible moderating factors of this effect in Canada. This is done from a comparative perspective: data from four developed countries—Canada, Germany, the United Kingdom and the United States—are analyzed. Analyzing cross-national equivalent measures provides at least two benefits. First, the relative loss of well-being from unemployment in a given country can be evaluated meaningfully. For instance, a significantly wider gap in employed–unemployed life satisfaction in a given country may be indicative of a particularly diverse or polarized labour market. Second, the role of contextual influences on well-being can be better understood. The extent of individuals' reduction in well-being from unemployment is intimately linked to macro factors such as institutional labour market factors and the welfare state. For instance, individuals in countries with effective active labour market policies may experience

1. Based on the *Happy Planet Index (HPI) 2012* (Happy Planet Index, n.d.), Gallup World Poll.
2. A few exceptions include Sharpe and Capeluck (2012), who showed a significant gap in life satisfaction between very young and old Canadians. Life satisfaction decreased for people aged 65 and over. Similarly, Lu et al. (2015) found considerable variation in life satisfaction across Canadian cities. This highlights the importance of regional factors in explaining the well-being of individuals.
3. However, Canadian studies have focused on different determinants of subjective well-being. Helliwell and Putnam (2004) and Helliwell (2005) explored the role of social context. Hou (2014) looked at the association between individual life satisfaction and the average income of others living in the same geographic area.

a smaller decrease in life satisfaction when unemployed. The comparative analysis provides insight into the moderating role of different contextual factors on individuals' well-being.

This paper addresses three main questions. First, it asks whether unemployment has a significant negative effect on well-being and how this effect differs by country. Second, this paper asks what the relative impact or monetary value of being unemployed is compared with other life events such as divorce or poor health. Finally, this paper examines whether the life satisfaction gap between the employed and the unemployed is altered by aggregate unemployment in the regional labour market, in accordance with spillover and social-norm hypotheses. The results have direct implications in a context of growing unemployment, especially among youth. Policies conceived to ameliorate well-being in relation to unemployment may need to focus not only on improving displaced workers' financial situations through redistribution of income, but also on establishing measures that create jobs, assist job seekers in acquiring skills and provide incentives to return to work.

The results suggest that noticeable non-pecuniary costs are associated with unemployment in the four countries studied. The unemployed tend to have lower levels of life satisfaction than the employed, everything else being equal. With regard to the second question, this study shows that the amount of money required to compensate the unemployed to close the life satisfaction gap would be substantial. In answer to the third question, this study shows that others' unemployment is a strong moderating factor of own unemployment in Canada and to a lesser extent in the United States. Others' unemployment has an ambiguous effect in the United Kingdom and an exacerbating effect in Germany. The results support a negative spillover effect of others' unemployment on the employed in the United States and Germany, no spillover effect in the United Kingdom and, surprisingly, a positive overall spillover effect in Canada. The anomaly in the Canadian findings was a phenomenon mainly in Atlantic Canada, not across the whole country.

The remainder of this paper is organized as follows. The next section provides a brief review of the literature. Section 3 describes data and descriptive statistics. Section 4 presents empirical evidence of the effect of unemployment on life satisfaction. Section 5 discusses factors that may drive cross-national differences in unemployment–life-satisfaction outcomes. Section 6 concludes the paper.

2 Unemployment, contextual factors and subjective well-being

An extensive literature has examined how unemployment affects life satisfaction. It is well documented that individuals' own unemployment reduces life satisfaction since losing a job incurs more than just income loss. The psychology literature has argued that unemployment can damage individuals' perceptions of self-worth (Goldsmith, Veum and Darity 1996) and lead to high levels of mental distress (Jahoda 1988; Warr 1987). Unemployed individuals' self-esteem and general happiness are even lower than those of individuals in low-paid employment (Theodossiou 1998).

The economic literature supports these assessments with empirical data. Clark and Oswald (1994) found a negative association between unemployment and mental well-being in the United Kingdom. Winkelmann and Winkelmann (1998) used German data to show that the negative effect of unemployment on life satisfaction goes beyond the loss of labour income.

Similarly, Carroll (2007) showed that the reduction in life satisfaction due to unemployment is estimated to be equivalent to the loss of $42,100 annual income for Australian men.[4]

While unemployment has a substantial negative effect on average, some groups tend to suffer more than others. Various moderating factors of well-being have been put forward that may explain the heterogeneous responses of individuals to unemployment. One identified moderating factor is contextual unemployment. The social-norm hypothesis proposes that the effect of unemployment on well-being depends on the labour market situation of relevant others (Clark and Oswald 1994). As more relevant others become unemployed, an individual's own unemployment represents a smaller deviation from the social norm. The negative effect of unemployment is thus dampened by high contextual unemployment rates. Empirical findings on the effect of contextual unemployment, however, are mixed. A few country studies did find that the unemployed report higher levels of well-being in regions with higher unemployment rates (Clark 2003; Stutzer and Lalive 2004; Powdthavee 2007; Shields, Wheatley Price and Wooden 2009; Helliwell and Huang 2011, 2014). Other studies found no evidence that regional unemployment mitigates the effect of own unemployment on well-being (Brereton, Clinch and Ferreira 2008; Oesch and Lipps 2013). Some studies found that own unemployment is even more hurtful when regional unemployment is higher (Clark, Knabe and Rätzel 2010; Chadi 2014).[5]

Recently, an increasing literature has found that contextual unemployment has a spillover effect on those who are not unemployed (Helliwell and Huang 2014). High regional unemployment can reduce workers' well-being, since employees contend with a fear of losing their own jobs.[6] In other words, workers with less secure attachment to the labour market (e.g., those in atypical or temporary contract jobs) are more likely to experience a spillover effect of unemployment. Luechinger, Meier and Stutzer (2010) looked at the role of employment security when specific sectors are exposed to economic shocks. They showed that the negative effect of high regional unemployment on own-life satisfaction is driven mainly by people's worries about employment insecurity. In fact, Clark, Knabe and Rätzel (2010, p. 52) argued that "the appropriate distinction may not be between employment and unemployment, but rather between higher and lower levels of labour-market security." They showed that unemployed men with good job prospects are at least as happy as employed men with secure jobs. They also showed that job insecurity has a significant negative effect on life satisfaction even for the employed.

A related discussion is the role of labour market institutions and the welfare state, which may moderate individuals' life satisfaction by changing their risks of employment and income insecurity. The moderating effect of institutional factors may be prominent at a regional (subnational) level of aggregation, if there are noticeable regional differences in labour market policies, or at the national level of aggregation. Previous studies have used cross-country variations to estimate the moderating effect of labour market institutions. Di Tella, MacCulloch and Oswald (2003), for instance, showed that the welfare state is a compensating force. More generous unemployment benefits are associated with higher well-being for both the employed and the unemployed, possibly because these benefits reduce concerns about future financial insecurity for both groups. Similarly, Carr and Chung (2014) showed that the negative relationship between employment insecurity and life satisfaction tends to be weaker in countries with stronger active or passive labour market policies. Ochsen and Welsch (2012) also provided evidence that

4. See other country studies such as those by Korpi (1997) on Sweden, Woittiez and Theeuwes (1998) on the Netherlands, and Frey and Stutzer (2000) on Switzerland.
5. Stavrova, Schlösser and Fetchenhauer (2011) argued that contextual unemployment rates capture only the "descriptive" norm to work, but what really matters is the societal "injunctive" norm to work (e.g., what most people approve or disapprove of). Using data from 28 OECD countries, they showed that unemployment hurts less in societies with more tolerant attitudes towards being out of work.
6. Some studies have argued that contextual unemployment may harm employees' well-being regardless of job security considerations. Employees may experience guilt or reduced morale when their coworkers become unemployed (Brockner 1992; Noer 1993).

employment protections effectively mitigate the adverse consequences of being unemployed on life satisfaction.

Moreover, some studies have emphasized the need to consider a wider set of country-level characteristics—beyond the institutional factors mentioned above—to understand the relationship between unemployment and life satisfaction. Eichhorn (2013), for instance, reported that greater income inequality tends to mitigate some of the negative effect of unemployment; however, when the proportion of women in the labour force is higher, life satisfaction among the unemployed seems to decrease further. He argued that these national-level contextual factors may change the reference group to which individuals compare themselves. Unemployment is perceived as a smaller deviation from the norm in countries with greater income inequality and as a larger deviation in countries with greater labour force participation of women.

Not all the aforementioned moderating factors of unemployment can be identified in the current study. Using datasets from four countries, this paper focuses on the effect of contextual unemployment on the relationship between unemployment and life satisfaction. It also examines whether the patterns differ significantly among the four countries. Country-level institutional factors are considered as a possible explanation for the remaining cross-national differences in well-being in relation to unemployment.

3 Data and descriptive statistics

The comparative analysis draws data from four sources: the Canadian Community Health Survey (CCHS) from 2009 to 2014, the German Socio-Economic Panel (GSOEP) from 1995 to 2011, the British Household Panel Survey (BHPS) from 1996 to 2008, and the U.S. Behavioral Risk Factor Surveillance System (BRFSS) from 2005 to 2010. The sample is restricted to the working-age population (ages 16 to 64).

The main dependent variable is subjective well-being. In the Canadian and German datasets, the variable is derived from a general question on life satisfaction answered on an ordinal scale from 0 to 10, where 0 means "very dissatisfied" and 10 means "very satisfied" with one's life. The British data use a similar but shorter scale (from 1 to 7), while the U.S. data use a scale from 1 to 4 labelled with relative statements (1 = very dissatisfied, 2 = dissatisfied, 3 = satisfied, 4 = very satisfied).[7] Table 1 summarizes the raw life satisfaction data for the four countries.

In general, working-age individuals are fairly satisfied with their lives. The scores are skewed towards the upper half of the scale in all cases (i.e., 6 to 10 on the 10-point scale, 5 to 7 on the 7-point scale and 3 to 4 on the 4-point scale). There are, however, considerable cross-national differences. In Canada, over 70% of the sample population reported high life satisfaction (i.e., 8 to 10), while the comparable figure is 44% for Germany. The U.K. and U.S. figures are difficult to compare because different scales were used.

To enable cross-national interpretation of the results, this study standardized the life satisfaction scores (or categories) on a mean zero and standard deviation one for each dataset, using the corresponding survey weights. The standardized scores are shown in the last column of each country's dataset in Table 1. This, at least, enables the interpretation of the four countries' life satisfaction scores on the same metric.[8] By this metric, a person with the highest life satisfaction

7. The U.S. data (originally 1= very satisfied, 2 = satisfied, 3 = dissatisfied, 4 = very dissatisfied) were recoded so that the life satisfaction scores were in the same ascending order as in the other datasets.
8. Stevenson and Wolfers (2008) used a similar but more sophisticated approach—standardization through an order probit, fixed-effects procedure—to reconstruct a common life satisfaction index across countries. Their approach yielded results very close to the simple standardization approach used in this study.

score is about 1.28 standard deviations above the mean in Canada, 1.46 in the United Kingdom, 1.71 in Germany and about 1.00 in the United States.

Table 2 presents mean standardized life satisfaction scores by employment status and gender for the four countries. In general, it is clear that the unemployed are less satisfied with life than their employed counterparts. The difference in life satisfaction between the two groups is significant in all cases. The employed–unemployed life satisfaction gaps look remarkably similar in Canada, the United States and the United Kingdom (around 0.5 standard deviations) and different in Germany (about 0.8 standard deviations). Table 2 also reveals gender differences. Women's life satisfaction scores are generally not as low as men's when they are unemployed or inactive. This may be driven by the difference in women's roles in the family. The particular dissatisfaction of men not in the labour force may point to the involuntary nature of inactivity for this group.

Chart 1 illustrates the relationship between the unemployment of relevant others and own life satisfaction. Regional unemployment rates (x-axis) are plotted against standardized life satisfaction scores (y-axis) of the employed and unemployed. Each data point represents a region in a given time period.[9] Overall for Germany, the United States and to a lesser extent the United Kingdom, the raw data suggest that higher regional unemployment rates reduce the life satisfaction of both the employed and the unemployed by roughly the same magnitude. These findings seem to be consistent with a negative spillover effect of unemployment on the employed; however, little or no social-norm effect is found for the unemployed. As a result, the employed–unemployed life satisfaction gaps in these three countries remain similar regardless of regional unemployment conditions.

9. In Canada, regions are defined according to 33 census metropolitan areas (CMAs) and 57 economic regions. The three other countries' regions are based mainly on government jurisdictions: 50 states plus Washington, D.C., for the United States; 12 office regions for the United Kingdom; and 13 federal states for Germany.

Table 1

The distribution of life satisfaction scores in four samples

Reported satisfaction	Canada (CCHS, 2009 to 2014)			Germany (GSOEP, 1995 to 2011)			United Kingdom (BHPS, 1996 to 2008)			United States (BRFSS, 2005 to 2010)		
	number	percent	standardized LS score	number	percent	standardized LS score	number	percent	standardized LS score	number	percent	standardized LS score
Score												
0	823	0.30	-5.14	981	0.49	-3.80	...	...	...	...	...	...
1	313	0.15	-4.49	1,020	0.47	-3.25	1,862	1.42	-3.31	20,373	1.12	-3.78
2	849	0.35	-3.85	3,166	1.47	-2.70	2,980	2.28	-2.51	80,722	4.69	-2.19
3	1,466	0.64	-3.21	6,756	2.93	-2.15	8,271	6.33	-1.72	785,213	49.96	-0.59
4	2,435	1.00	-2.57	9,334	3.98	-1.60	18,781	14.37	-0.92	713,261	44.23	1.00
5	10,506	4.81	-1.93	29,542	12.42	-1.04	40,543	31.03	-0.13	...	...	...
6	10,889	5.16	1.29	29,086	11.47	-0.49	43,749	33.48	0.67	...	...	...
7	35,228	17.05	-0.64	58,878	22.63	0.06	14,484	11.08	1.46	...	...	...
8	72,824	33.66	0.00	77,591	29.31	0.61	...	...	...	...	...	...
9	41,226	18.92	0.64	28,939	10.81	1.16	...	...	...	...	...	...
10	41,982	17.96	1.28	9,945	4.03	1.71	...	...	...	...	...	...
All	218,541	100.00	0.00	255,238	100.00	0.00	130,670	100.00	0.00	1,599,569	100.00	0.00

... not applicable

Note: LS: life satisfaction. Weighted percentages (percent) are presented. Percentages may not add up to 100.00% because of rounding.

Sources: Statistics Canada, Canadian Community Health Survey (CCHS), 2009 to 2014; Deutsches Institut für Wirtschaftsforschung, German Socio-Economic Panel (GSOEP), 1995 to 2011; Institute for Social and Economic Research, British Household Panel Survey (BHPS), 1996 to 2008; and Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BFRSS), 2005 to 2010.

Table 2

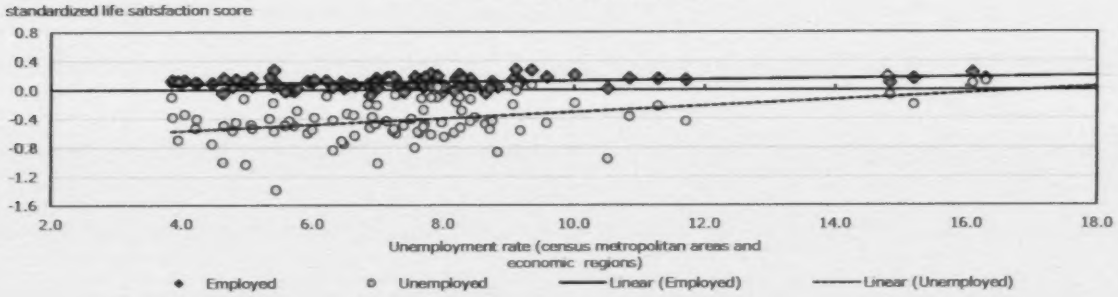
Mean standardized life satisfaction scores by labour force status and gender (weighted)

	Canada (CCHS, 2009 to 2014)			United States (BRFSS, 2005 to 2010)			United Kingdom (BHPS, 1996 to 2008)			Germany (GSOEP, 1995 to 2011)		
	Employed	Unemployed	Not in labour force	Employed	Unemployed	Not in labour force	Employed	Unemployed	Not in labour force	Employed	Unemployed	Not in labour force
	score											
Gender												
Men	0.03	-0.47	-0.21	0.08	-0.50	-0.20	0.08	-0.42	-0.19	0.07	-0.82	-0.11
Women	0.06	-0.39	-0.03	0.09	-0.45	-0.05	0.06	-0.45	-0.09	0.08	-0.60	0.04
All	0.04	-0.43	-0.09	0.08	-0.48	-0.10	0.07	-0.43	-0.12	0.07	-0.72	-0.01

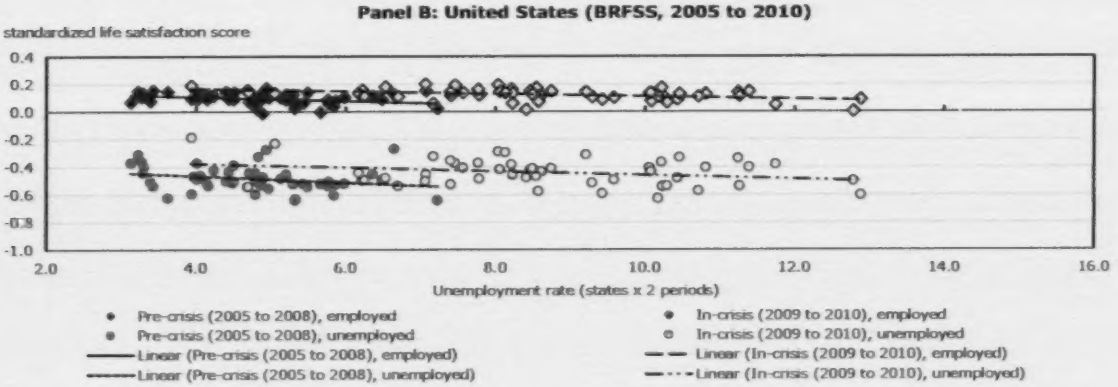
Sources: Statistics Canada, Canadian Community Health Survey (CCHS), 2009 to 2014; Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BFRSS), 2005 to 2010; Institute for Social and Economic Research, British Household Panel Survey (BHPS), 1996 to 2008; and Deutsches Institut für Wirtschaftsforschung, German Socio-Economic Panel (GSOEP), 1995 to 2011; Institute for Social and Economic Research, British Household Panel Survey (BHPS), 1996 to 2008.

Chart 1
Others' unemployment and life satisfaction

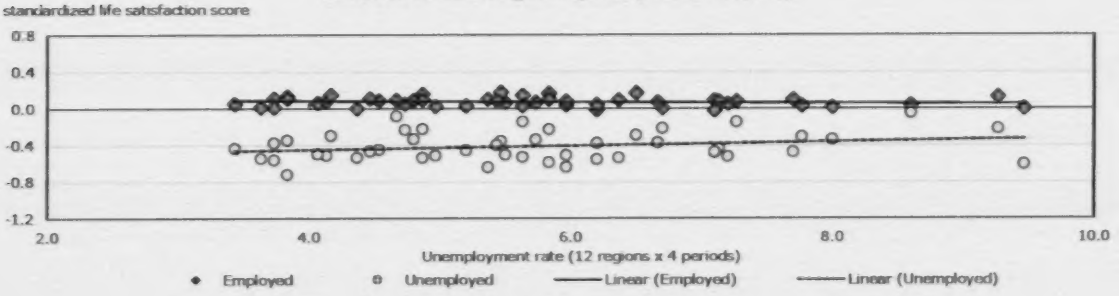
Panel A: Canada (CCHS, 2009 to 2014)



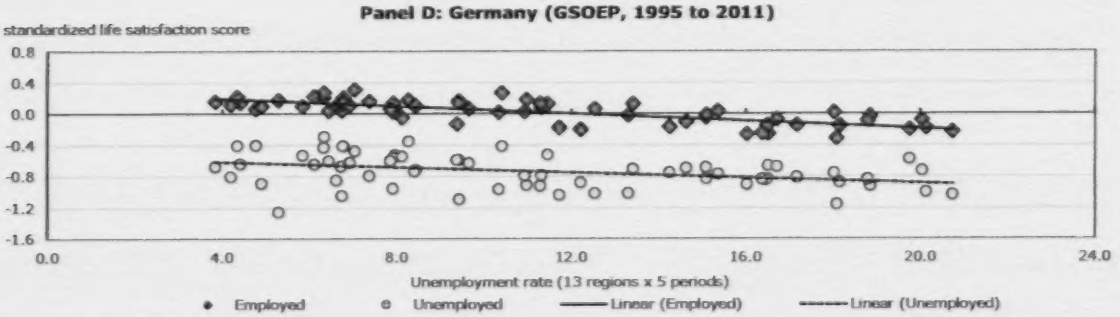
Panel B: United States (BRFSS, 2005 to 2010)



Panel C: United Kingdom (BHPS, 1996 to 2008)



Panel D: Germany (GSOEP, 1995 to 2011)



Note: Data are missing for one region of the United Kingdom (Panel C) from 1996 to 1998.
Sources: Statistics Canada, Canadian Community Health Survey (CCHS), 2009 to 2014; Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS), 2005 to 2010; Institute for Social and Economic Research, British Household Panel Survey (BHPS), 1996 to 2008; and Deutsches Institut für Wirtschaftsforschung, German Socio-Economic Panel (GSOEP), 1995 to 2001.

Canada stands out as a special case in which others' unemployment tends to lift up life satisfaction, particularly among the unemployed. This implies that the employed–unemployed life satisfaction gap closes in high unemployment regions. In fact, mean life satisfaction scores are remarkably similar for employed and unemployed people in regions with 16% or higher unemployment rates. While this pattern is consistent with a social-norm effect, the large share of seasonal industries in Canada's high unemployment regions may also play a role. High recall expectations and relatively generous benefit replacement rates may greatly reduce any uncertainty or disadvantages associated with unemployment in these regions.

4 Empirical results

4.1 Baseline: The drivers of life satisfaction

Table 3 presents the results from ordinary least squares regressions. Consistent with raw statistics, there is a marked life satisfaction gap between the employed and the unemployed, when all other variables—including household income—are held constant.[10] On average, the unemployed experience lower life satisfaction than the employed by about 0.3 standard deviations in Canada and the United States, by 0.32 standard deviations in the United Kingdom and by 0.47 standard deviations in Germany. At a first glance, the impact of unemployment on life satisfaction looks remarkably similar in Canada, the United States and the United Kingdom, and significantly higher in Germany. The life satisfaction of inactive individuals, by contrast, is generally similar to that of the employed; however, a small negative effect was found in the U.K. and German data.

Interestingly, regional unemployment has different effects on life satisfaction across these countries. In the United States and Germany, regional unemployment has a strong negative impact on own life satisfaction. For a 1-percentage-point increase in regional unemployment, life satisfaction scores are reduced by 0.009 standard deviations in the United States and 0.017 standard deviations in Germany. No significant effect was found in the United Kingdom. These country-specific findings are largely consistent with the results of previous studies (e.g., Helliwell and Huang 2014; Clark 2003). The Canadian data, by contrast, reveal a different pattern: higher regional unemployment increases own life satisfaction by nearly 0.01 standard deviations for a 1-percentage-point increase in regional unemployment. These findings suggest that unemployment may have an indirect effect (either positive or negative) on the entire population including those who are not unemployed.

The estimated impacts of other covariates on life satisfaction are generally expected and consistent with the literature. In all cases, women have higher life satisfaction than men. Those who report "fair" or "poor" health have significantly lower life satisfaction than those who report "very good" or "good" health. Life satisfaction tends to decrease with age, but the relationship is nonlinear. Life satisfaction hits a low point at midlife and then picks up again. Individuals who are single, divorced or separated report lower life satisfaction than those who are married. Results on the life satisfaction of immigrants are generally small and inconsistent between countries. With regard to ethnicity, visible minorities of South or East Asian origin tend to report lower life satisfaction in Canada, the United States and the United Kingdom than otherwise-equal white counterparts. Interestingly, life satisfaction is notably higher among Latin Americans in the United States and lower among Black people in the United Kingdom.

10. Common individual determinants include age, age squared, gender, self-reported health condition, race, immigration status, educational attainment, marital status, household size, pre-tax household income and regional unemployment rate.

Table 3-1
Cross-national comparison of employment status and life satisfaction, baseline specification — Part 1

Variable	Canada	United States	United Kingdom	Germany
Labour force (reference: employed)				
Unemployed				
Coefficient	-0.297	-0.303	-0.317	-0.474
Standard error	0.022	0.008	0.014	0.013
Not in labour force				
Coefficient	-0.011	-0.011	-0.065	-0.035
Standard error	0.012	0.004	0.007	0.007
Regional unemployment rate				
Coefficient	0.944	-0.876	-0.062	-1.715
Standard error	0.144	0.113	0.221	0.063
Women				
Coefficient	0.066	0.039	0.051	0.094
Standard error	0.008	0.003	0.005	0.005
Age				
Coefficient	-0.044	-0.037	-0.060	-0.047
Standard error	0.002	0.001	0.001	0.002
Age squared/100				
Coefficient	0.050	0.046	0.073	0.059
Standard error	0.003	0.002	0.002	0.002
Household size				
Coefficient	-0.001	0.006	-0.026	-0.037
Standard error	0.003	0.001	0.002	0.003
Health condition (reference: good)				
Very good				
Coefficient	0.456	0.330	0.284	0.345
Standard error	0.008	0.004	0.006	0.008
Fair				
Coefficient	-0.762	-0.378	-0.405	-0.443
Standard error	0.020	0.006	0.007	0.006
Poor				
Coefficient	-1.580	-0.834	-0.925	-1.048
Standard error	0.055	0.012	0.010	0.010
Migration (reference: native)				
Immigrant				
Coefficient	-0.091	...	0.138	0.024
Standard error	0.013	...	0.041	0.016
Foreign worker				
Coefficient	...	...	...	-0.033
Standard error	...	...	...	0.010
Race (reference: white)				
Black				
Coefficient	-0.049	-0.002	-0.185	...
Standard error	0.035	0.006	0.081	...
Latin American				
Coefficient	...	0.076	...	...
Standard error	...	0.006	...	...

... not applicable

Note: For the U.S. data, the five income categories are (less than $20,000), ($20,000 to $34,999), ($35,000 to $49,999), ($50,000 to $75,000) and (greater than $75,000). The dependent variable is standardized life satisfaction score.

Sources: Statistics Canada, Canadian Community Health Survey (CCHS), 2009 to 2014; Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BFRSS), 2005 to 2010; Institute for Social and Economic Research, British Household Panel Survey (BHPS), 1996 to 2008; Deutsches Institut für Wirtschaftsforschung, German Socio-Economic Panel (GSOEP), 1995 to 2011.

Table 3-2
Cross-national comparison of employment status and life satisfaction, baseline specification — Part 2

Variable	Canada	United States	United Kingdom	Germany
Race (reference: white) (continued)				
South and East Asian				
Coefficient	-0.115	-0.106	-0.264	...
Standard error	0.019	0.011	0.049	...
Other				
Coefficient	-0.043	-0.053	-0.005	...
Standard error	0.020	0.008	0.078	...
Aboriginal				
Coefficient	0.036	...	...	...
Standard error	0.018	...	...	...
Marital status (reference: married)				
Single				
Coefficient	-0.285	-0.295	-0.218	-0.161
Standard error	0.010	0.006	0.008	0.008
Divorced or separated				
Coefficient	-0.331	-0.314	-0.293	-0.194
Standard error	0.014	0.005	0.009	0.009
Education (reference: university)				
Less than high school				
Coefficient	0.015	-0.081	0.118	-0.097
Standard error	0.016	0.008	0.012	0.011
High school completed				
Coefficient	-0.010	-0.078	0.073	-0.063
Standard error	0.012	0.004	0.009	0.009
Some postsecondary education				
Coefficient	0.027	-0.079	0.042	-0.043
Standard error	0.010	0.004	0.008	0.011
Household income (reference: third quintile)				
Bottom quintile/category				
Coefficient	-0.180	-0.164	-0.146	-0.248
Standard error	0.014	0.007	0.009	0.010
Second quintile/category				
Coefficient	-0.050	-0.071	-0.046	-0.087
Standard error	0.012	0.006	0.008	0.008
Fourth quintile/category				
Coefficient	0.045	0.087	0.022	0.061
Standard error	0.011	0.005	0.008	0.007
Top quintile/category				
Coefficient	0.102	0.198	0.060	0.139
Standard error	0.012	0.005	0.009	0.008
Missing category included	Yes	Yes	Yes	Yes
Year fixed effects included	Yes	Yes	Yes	Yes
Years covered	2009 to 2014	2005 to 2010	1996 to 2008	1995 to 2011
Number of observations	217,976	1,589,087	126,770	254,823
R-squared	0.186	0.154	0.160	0.247

... not applicable

Note: For the U.S. data, the five income categories are (less than $20,000), ($20,000 to $34,999), ($35,000 to $49,999), ($50,000 to $75,000) and (greater than $75,000). The dependent variable is standardized life satisfaction score.

Sources: Statistics Canada, Canadian Community Health Survey (CCHS), 2009 to 2014; Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BFRSS), 2005 to 2010; Institute for Social and Economic Research, British Household Panel Survey (BHPS), 1996 to 2008; Deutsches Institut für Wirtschaftsforschung, German Socio-Economic Panel (GSOEP), 1995 to 2011.

The correlation between education and life satisfaction is weak or inconclusive, likely because education is highly correlated to other controlled variables that have a strong impact on life satisfaction.[11] This is consistent with the literature. Helliwell and Putnam (2004), for instance, showed that the impact of education on life satisfaction is driven through health.

With regard to the effect of income, previous literature has suggested that absolute income is a poor estimator of well-being at the country level (Easterlin 1974) and, in some cases, also at the individual level (Clark and Oswald 1994; Clark 2003; Mavridis 2012). Clark (2003), for instance, failed to find any positive income effect in the early BHPS data. He argued that higher income may be correlated with other factors that reduce well-being, such as working hours. In contrast, the results of this study reveal a positive and significant correlation between household income and life satisfaction in the four countries analyzed. This suggests that material well-being leads to higher subjective well-being.[12] A positive correlation with income is also found by Helliwell (2005) for Canada; Helliwell and Huang (2011, 2014) for the United States; and Clark, Knabe and Rätzel (2010) for Germany.

Measures of subjective well-being also provide a straightforward way of comparing the relative impact of unemployment to different life events. This comparison is drawn by dividing the estimated coefficient on unemployment by the coefficient on the relevant life event or status (Clark and Oswald 2002). Comparisons based on the coefficients in Table 3 show that unemployment has roughly the same impact on life satisfaction as divorce or separation in Canada, the United States and the United Kingdom. In Germany, unemployment has more than twice the impact of divorce or separation, with all else held constant. Unemployment leads to a reduction in life satisfaction that is equivalent to the effect of a drop in health condition from good to fair in the United States, United Kingdom and Germany but less so in Canada.

The amount of money or increment that would be required to compensate the unemployed to keep them at the same level of life satisfaction is enormous in all cases. In Canada, for instance, the relationship between unemployment and life satisfaction is equivalent to the difference in life satisfaction between those in the top quintile of household income and those in the bottom quintile. Given that the mean value of household income is roughly $25,000 in the bottom quintile and $190,000 in the top quintile in the sample, a move from employment to unemployment would have to be compensated by an annual payment of $165,000. Since the average annual individual income over the whole sample is just over $51,000, these findings suggest that the impact on well-being of unemployment does not stem mainly from the loss of earnings.

Similar findings emerged from the U.S. and German samples. In the former, the relative impact on life satisfaction of being unemployed is slightly smaller than that of a drop in income from the top to the bottom category. In the latter, the relative impact is slightly higher. The corresponding ratios are 0.84 for the U.S. data and 1.22 for the German data. The cost of unemployment seems to be notably higher in the United Kingdom. An even bigger increase in household income—about 1.54 times more than the income required to rise from the bottom to the top quintile—would be required for the unemployed to keep the same life satisfaction level. These results on compensating income in general are consistent with the international literature (Winkelmann and Winkelmann 1998; Powdthavee 2007; Helliwell and Huang 2014).[13]

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11. See Diener et al. (1999) for a literature review.
12. The income variable is represented by a series of dummies indicating to which quintile group an individual belongs. Since some people do not report income, a dummy is also included in the model (not reported) to indicate the missing income group.
13. Winkelmann and Winkelmann (1998) used GSOEP data and showed that for the unemployed, it would require a sevenfold increase in income to compensate for the drop in life satisfaction. Helliwell and Huang (2014) found that the ratio of nonpecuniary to pecuniary effects from personal unemployment is about 5.6 for the United States. Powdthavee (2007), based on the BHPS data, showed that the negative effect of unemployment on life satisfaction would require an increase in annual income of GBP143,000 to compensate.

In addition, regional unemployment has indirect or spillover effects on the well-being of the entire working-age population, as indicated by the coefficient on regional unemployment rate in Table 3. This implies that job loss may hurt certain populations more or less than others. The impact may depend on the regional unemployment level. In the next section, this paper examines spillover and social-norm effects.

4.2 Life satisfaction and others' unemployment: Spillover and social-norm effects of unemployment

In addition to interpersonal differences on life satisfaction, there is growing evidence that contextual unemployment (i.e., what happens to others) may affect the life satisfaction of all individuals through two opposing processes (Clark, Knabe and Rätzel 2010; Helliwell and Huang 2014). Others' unemployment tends to have a negative spillover effect on those who are still at work by reducing their life satisfaction. This is because others' unemployment causes the employed to worry about their own job security. On the other hand, higher contextual unemployment could make the unemployed feel less pain as the result of a social-norm effect. These effects were examined by adding interaction terms between individual labour force status and regional unemployment rate in the regressions. The results are presented in Table 4.

As mentioned, the estimated coefficient on regional unemployment is expected to be negative if others' unemployment has an adverse spillover effect on the employed (i.e., the reference group). A positive coefficient on the interaction of own unemployment and regional unemployment is also expected if the unemployed are less negatively affected by regional unemployment than are the employed (i.e., social-norm effect). The results are mixed across the four countries.

In terms of spillover effect, Table 4 shows that higher regional unemployment significantly reduces the life satisfaction of employed people in Germany and the United States. A 1-percentage-point rise in the regional unemployment rate corresponds to a marked decline in the life satisfaction of the employed of nearly 0.017 standard deviations in Germany and, to a lesser extent, of 0.009 standard deviations in the United States.[14] The results in general are consistent with other studies for the United States (Helliwell and Huang 2014) and Germany (Clark, Knabe and Rätzel 2010). No spillover effect was found in the United Kingdom, and a significant positive spillover effect was found in Canada. This indicates that Canadian workers are more satisfied in regions with higher unemployment.

Similarly, a social-norm effect is found only in some of the countries. The unemployed were less negatively affected by contextual unemployment than the employed in Canada and the United States. The coefficient on the interaction term suggests that the employed–unemployed life satisfaction gap decreases in higher unemployment areas. The social-norm effect is particularly pronounced in Canada, where the negative impact of unemployment is greatly reduced in high unemployment regions. An additional 1-percentage-point rise in the regional unemployment rate reduces the employed–unemployed life satisfaction gap by about 0.024 standard deviations.[15] The reduction is more modest in the United States: 0.007 standard deviations for a 1-percentage-point increase in the regional unemployment rate. Both findings are statistically significant at the 1% level. A similar social-norm effect is observed in the U.K. data, but the effect is not statistically significant at the 10% level. By contrast, contextual unemployment seems to hurt the unemployed more than the employed in Germany. This leads to a larger well-being gap in higher unemployment areas.

14. Note that regional unemployment is measured in fractional terms such as 0.05, which refers to a 5% unemployment rate.
15. The positive association between life satisfaction and the interaction of own unemployment and contextual unemployment may also reflect an 'amenity effect,' if high unemployment regions offer some benefits (such as low pace of life, accessible outdoor activities) that improve life satisfaction.

The counterintuitive Canadian findings on spillover and social-norm effects raise concerns about whether the estimates are too heavily influenced by samples from the Atlantic region. In this region, unemployment rates are much higher (on average in the double digits) than across the rest of Canada. To gauge the degree of influence of the Atlantic provinces, a separate analysis was performed for Canada excluding the four Atlantic provinces.[16] The spillover effect (i.e., the coefficient on the regional unemployment rate) became insignificant (0.016). The social-norm effect (i.e., the coefficient on unemployed interacted with regional unemployment rate) remained large and significant (2.220). This suggests that the finding of a positive association between the regional unemployment rate and life satisfaction for the employed is a phenomenon in Atlantic Canada, not across the whole country. Nevertheless, higher regional unemployment has a strong moderating effect for unemployed Canadians even when Atlantic Canada is excluded.

Table 4
Life satisfaction and regional unemployment (spillover and social-norm effects)

Variable	Canada	United States	United Kingdom	Germany
Labour force (reference: employed)				
Unemployed				
Coefficient	-0.483	-0.354	-0.391	-0.411
Standard error	0.056	0.022	0.052	0.031
Not in labour force				
Coefficient	-0.037	-0.001	-0.063	-0.036
Standard error	0.031	0.010	0.024	0.014
Regional unemployment rate				
Coefficient	0.749	-0.900	-0.103	-1.667
Standard error	0.168	0.119	0.249	0.070
Unemployed × regional unemployment rate				
Coefficient	2.368	0.703	1.238	-0.566
Standard error	0.643	0.277	0.871	0.234
Not in labour force × regional unemployment rate				
Coefficient	0.340	-0.165	-0.046	0.019
Standard error	0.361	0.146	0.411	0.131
Other controls in Table 3 included	Yes	Yes	Yes	Yes
Year fixed effects included	Yes	Yes	Yes	Yes
Years covered	2009 to 2014	2005 to 2010	1996 to 2008	1995 to 2011
Number of observations	217,976	1,589,087	126,770	254,823
R-squared	0.186	0.154	0.158	0.247

Note: The dependent variable is standardized life satisfaction score.

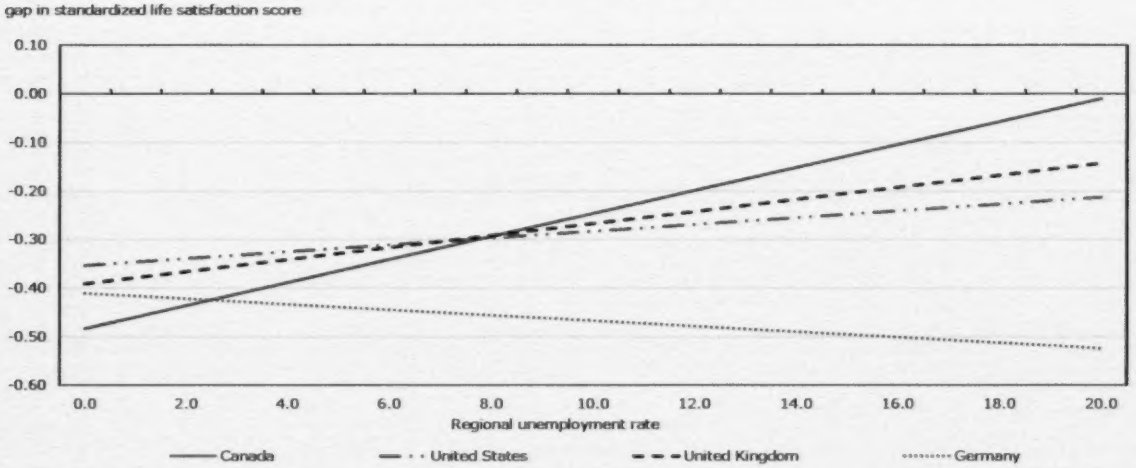
Sources: Statistics Canada, Canadian Community Health Survey (CCHS), 2009 to 2014; Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BFRSS), 2005 to 2010; Institute for Social and Economic Research, British Household Panel Survey (BHPS), 1996 to 2008; Deutsches Institut für Wirtschaftsforschung, German Socio-Economic Panel (GSOEP), 1995 to 2011.

Using the estimated coefficients from Table 4, Chart 2 illustrates how the gap in unemployed–employed life satisfaction may evolve in relation to the regional unemployment rate. Four interesting patterns emerge. First, for Canada, the United States and the United Kingdom, the estimated life satisfaction gaps between the employed and unemployed look identical when the regional unemployment rate is around 8%, all else being equal. Second, others' unemployment is positively correlated to the life satisfaction of the unemployed in all the countries except Germany. However, only in Canada is the effect large enough to eliminate the unemployed–employed life satisfaction gap. In Canada, employment and unemployment have equal life

16. The four Atlantic provinces are New Brunswick, Newfoundland and Labrador, Nova Scotia, and Prince Edward Island.

satisfaction effects at a regional unemployment rate of 20%.[17] Third, Germany is the only country that shows a strong negative effect of others' unemployment on the well-being of the unemployed. Finally, regional variation in interactions between life satisfaction and unemployment could contribute to cross-national differences in the well-being gap between the employed and unemployed. In particular, the relatively small unemployed–employed life satisfaction gap in Canada is partially driven by greater regional interaction effects. The same is the case for the relatively wide gap in Germany.

Chart 2
Estimated unemployed–employed gap in life satisfaction, by regional unemployment rate



Source: Statistics Canada, authors' calculation based on regression coefficients shown in Table 4.

4.3 Comparing 'otherwise-equal' employed and unemployed individuals between countries

The cross-national variation in employed–unemployed well-being gaps observed above may be shaped by national differences in average demographic, regional or institutional characteristics. For example, the countries where a higher share of the unemployed reported good health may show a smaller employed–unemployed life satisfaction gap, since health is positively associated with subjective well-being. As shown earlier, more diverse cross-national patterns may emerge if the regional unemployment rates vary significantly across regions.

Examining the predicted life satisfaction scores for individuals with similar characteristics in all four countries improves comparability across the countries. The challenge here is that this analysis used standardized life satisfaction scores, so the predicted life satisfaction scores for the employed and unemployed capture the deviation from the national average. The national average may be different across countries depending on population compositions. For instance, the life satisfaction of the employed may not differ from the average in countries where the unemployment rate is low, whereas the opposite may be the case in the countries with a high unemployment rate. Therefore, a reference group must be used as a common denominator to compare the data from the four countries. For this purpose, this study arbitrarily chose a group—women who are aged 40, married, in good health and not in the labour force—as the common reference.

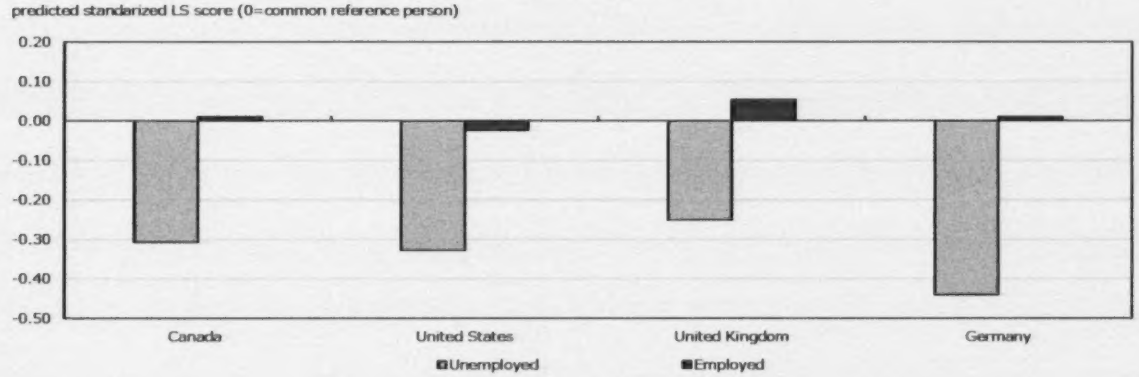
To calculate the predicted life satisfaction scores of a group otherwise equal to the reference group (not the national average) in all four countries, the following steps were taken. First, the

17. The estimates in Table 4 suggest that the gap would disappear at a regional unemployment rate of 50% for the U.S. sample and 32% for the U.K. sample. Both rates are out of sample. The U.K. estimates are not statistically significant at the 10% level.

estimated coefficients from Table 5 were used to predict the standardized life satisfaction score of the reference group as well as to predict the life satisfaction scores of the employed and unemployed with a given set of characteristics.[18] The life satisfaction scores of the reference group were then subtracted from the predicted life satisfaction scores of the employed and unemployed of interest. These readjusted results are presented in Chart 3.

A few interesting patterns emerged. First, the predicted standardized life satisfaction scores for employed individuals with given characteristics were similar across the four countries. Overall, the predicted scores of the employed were similar to those of the reference group (i.e., married, healthy women aged 40 not in the labour force), with only modest variation across countries. Second, the results suggest that the large employed–unemployed well-being gap in the German data (Table 3) stems mainly from low life satisfaction among the unemployed in Germany. In fact, unemployed Germans stand out as having the lowest predicted life satisfaction score (about 0.45 standard deviations below that of the reference group) among the countries studied.

Chart 3
Predicted difference in life satisfaction score (in standard deviations) for both the employed and unemployed with given characteristics, compared with the common reference group



Note: The reference group is women who are aged 40, married, in good health and not in the labour force. The standardized scores for employed and unemployed were calculated using the regression results from Table 4 with the following characteristics: male at age 40, high school graduate, native-born, in good health, married, in median income quintile, in year 2008, at a region with an unemployment rate of 7%. LS: life satisfaction.
Source: Statistics Canada, authors' calculations.

5 Cross-national differences and possible explanations

The results reveal some interesting cross-country similarities and differences in the well-being of the employed and the unemployed among the four countries studied. In all cases, noticeable non-pecuniary costs are associated with unemployment, net of observable characteristics. Unemployed Canadians, like the unemployed in the other countries, tend to have lower levels of life satisfaction than the employed, with everything else held equal. The estimated employed–unemployed life satisfaction gap looks remarkably similar in Canada, the United States and the United Kingdom. It is significantly wider in Germany.

5.1 Job security and prospects

One possible explanation for the wide employed–unemployed life satisfaction gap in Germany is labour market security and prospects. Knabe and Rätzel (2011) showed that individuals' perceptions of labour market risk have a greater impact on their well-being than their employment

18. As an example, standardized scores were simulated for individuals with the following characteristics: men who are aged 40, high school graduates, native-born, in good health, married, in the middle household income quintile, in 2008 and in a region with an unemployment rate of 7%.

status. Clark, Knabe and Rätzel (2010) divided their sample into four mutually exclusive groups according to their job security and prospects. They found that the employed with high job security had the highest life satisfaction, while the unemployed with poor job prospects had the lowest life satisfaction. Interestingly, the average life satisfaction of the insecurely employed and of the unemployed with good job prospects is similar. The wide employed–unemployed life satisfaction gap in Germany may indicate a polarized labour market, where the employed are secure and the unemployed have poor job prospects (as a result of, for instance, significant entry or re-entry barriers).

The summary labour market and institution indicators for the four countries reported in Table 5 were used to determine whether the labour market in Germany is polarized. These indicators were derived from OECD data.[19] The results support the idea of a polarization between job security and job prospects in the German labour market. Germany stands out as having the lowest incidence of short job tenures, as well as the highest incidence of long job tenures, among the four countries. Over the study period, nearly 60% of German employees had five years or more of tenure with their current employer. Only 46% to 48% of employees in the three other countries had five years of more of tenure with their current employers over their corresponding periods. The employee turnover rate was lower in Germany: only about 15% of employees experienced a short job tenure of less than a year, versus 20% or more of employees in the three other countries. These results suggest that German employees are relatively more secure in their jobs. Table 5 also confirms that prospects for job seekers are relatively gloomy in Germany: over 50% of the unemployed were out of work longer than one year. The long-term unemployment rates are much lower in the three other countries, at 12% for Canada, 15% for the United States and 27% United Kingdom. This also explains why unemployed Germans had significantly lower predicted life satisfaction scores (see Section 4.4) than their otherwise-equal counterparts in other countries.

Cross-national variation in employment security and prospects may be partially driven by institutional factors such as the strictness of employment protection legislation (EPL). Empirical studies often find that strict EPL negatively affects unemployment inflow and outflow, because stricter EPL entails higher firing costs and reduces the propensity to hire by employers (for a review, see OECD [2013]) . The differences in EPL among the four countries (over their respective sample periods) reported in Table 5 support this claim. Germany had relatively more stringent EPL against dismissals for regular and temporary workers than, in order, the United Kingdom, Canada and the United States.

19. See OECD statistics (http://stats.oecd.org).

5.2 The social-norm effect (of others' unemployment)

Cross-national differences also emerged in the effect of contextual unemployment on well-being. This study found that others' unemployment is a strong moderating factor of own unemployment in Canada (with or without the inclusion of the Atlantic Provinces) and to a lesser extent in the United States. Others' unemployment has an amplifying effect on well-being in Germany and a rather weak or ambiguous effect in the United Kingdom. Part of the moderating effect, if any, can be explained by the social-norm hypothesis, which suggests the unemployed are less hurt by high regional unemployment than the employed. However, other factors are also at play, especially in Canada, where the employed–unemployed life satisfaction gap is eliminated at a regional unemployment rate of 20%. For the three other countries, the gaps remain large (or widening in the case of Germany) even in the samples' highest unemployment region.

It is not clear why the moderating effect of regional unemployment is significantly stronger in Canada than in the other countries. One possible explanation may be the greater seasonality in Canada's high unemployment regions. For example, opportunities for full-year work in remote or rural areas such as the Atlantic coast are often limited. High recall expectations and relatively generous employment insurance (EI) benefits for seasonal workers who are out of work may mitigate the impact of unemployment on well-being. Sharpe and Smith (2005) argued that part of the high seasonality in these regions (especially the Atlantic region) may be induced by policy. The policies meant to protect the fishing industry, in combination with generous and unrestricted off-season EI benefits for seasonal workers, make part-year work more attractive than lower-pay full-year jobs.[20] Such regional interactions in life satisfaction and unemployment partially contribute to a small average employed–unemployed life satisfaction gap in Canada. In the absence of a moderating effect (i.e., when the regional unemployment rate is 0), unemployed Canadians would be less satisfied than their employed counterparts by as many as 0.48 standard deviations—greater than the magnitudes observed in the three other countries.

Table 5
Summary of selected labour market and institutional indicators, averaged over each study period

	Canada, 2009 to 2014	United States, 2005 to 2010	United Kingdom, 1996 to 2008	Germany, 1995 to 2011
	percent			
Indicator 1: Job security of the employed				
Incidence of short job tenure (less than 12 months), as a percentage of total employment	20.4	22.6	19.8	14.8
Incidence of long job tenure (5 years or more), as a percentage of total employment	46.1	46.8	48.5	58.8
Indicator 2: Job prospects of the unemployed				
Incidence of long-term unemployment (12 months or more), as a percentage of total unemployment	12.0	14.6	26.7	50.7
Indicator 3: Institutional labour market factors — Employment protection legislation (EPL)				
Regular workers (0 to 6, least to most restrictions)	0.92	0.26	1.21	2.68
Temporary workers (0 to 6, least to most restrictions)	0.25	0.25	0.31	1.66

Source: Organisation for Economic Co-operation and Development (OECD) statistics.

20. In fact, Shape and Smith (2005) argued that the lack of full-time jobs in Atlantic Canada may be driven in part by social contracts between workers and firms, whereby operations are full-year but include seasonal "shifts" of workers who work long enough to qualify for EI benefits only.

5.3 The spillover effect on the employed

In addition to the social-norm effect, the results highlight interesting cross-national variation in the spillover effect of others' unemployment on the employed. Overall, the results support an adverse spillover effect in the United States and Germany, no effect in the United Kingdom and, surprisingly, a positive overall effect in Canada. How to explain cross-national differences in externalities? Clark, Knabe and Rätzel (2010) argued that the pivotal factor is individuals' perceptions of labour market insecurity rather than their own employment status. Their results reveal that regional unemployment has a negative spillover effect on securely employed men and unemployed men with good job prospects, whereas regional unemployment has a less negative or even a positive spillover effect on insecurely employed men and unemployed men with poor job prospects. This may explain why the negative spillover effect is stronger in Germany than in the United States. The prevalence of the securely employed, as shown in Table 5, is higher in Germany than in the United States.

As shown earlier, the positive spillover effect in Canada is driven mainly by the Atlantic region, where higher regional unemployment is associated with higher life satisfaction among the employed. Lu et al. (2015) found similar results, showing that average life satisfaction scores were higher in the Maritime and Quebec regions where unemployment was higher. Some of these regional differences may be related to contextual factors such as population density and the ethnic composition of the population. High unemployment regions may be associated with factors that improve well-being, such as community belonging (a factor that is positively associated with social capital and thus higher life satisfaction). Lu et al. (2015) showed that contextual factors and community belonging explain some variation, but the overall regional differences in life satisfaction remain similar even when these factors are taken into account.

The other possible reasons that may explain the positive spillover effect in Atlantic Canada are related to selective migration (Borjas 1987). Not surprisingly, high unemployment regions often have relatively high net out-migration rates—mostly because of rural-to-urban migration. Individuals who leave rural areas or small cities for large metropolitan areas may be less happy than those with the same sociodemographic characteristics who stay in rural areas. Glaeser, Gottlieb and Ziv (2014) examined a related issue—unhappiness and urban decline in U.S. cities. They found that happier people were less likely to leave declining cities, relative to rising cities, even though residents of declining cities were less happy than other Americans. Future research is needed to understand the relationship between migration and life satisfaction, as well as the interactions with local area characteristics, in Canada.

6 Conclusion

This paper investigates the effect of unemployment on life satisfaction from a comparative perspective, using data from Canada, the United States, the United Kingdom and Germany. It also tests whether the link between unemployment and life satisfaction is moderated by contextual unemployment—either through a negative spillover or a positive social-norm effect, or both—across regions within the countries.

The results suggest that noticeable non-pecuniary costs are associated with unemployment in all four countries. *Ceteris paribus*, the unemployed tend to have lower life satisfaction than the employed by about 0.3 standard deviations in Canada, the United States and the United Kingdom, and by a larger margin of 0.47 standard deviations in Germany. The amount of money or increment that would be required to compensate the unemployed to keep them at the same level of life satisfaction is enormous.

Cross-national differences emerged in the impact of moderating factors. This study shows that others' unemployment (measured by the regional unemployment rate) is a strong moderating factor of own unemployment in Canada and to a lesser extent in the United States. This is consistent with the social-norm hypothesis. However, the effect of others' unemployment is ambiguous in the United Kingdom and exacerbating in Germany. The results support a negative spillover effect of others' unemployment on the employed in the United States and Germany, no spillover effect in the United Kingdom and, surprisingly, a positive overall spillover effect in Canada. Sensitivity testing revealed that this Canadian anomaly was a phenomenon mainly in Atlantic Canada, not across the whole country.

Variation in the impact of moderating factors across regions contributes to cross-national differences in the employed–unemployed life satisfaction gap. In Canada, the negative effect of unemployment on life satisfaction is eliminated at a regional unemployment rate of 20%, while in the three other countries, the gap remains large (or widening in case of Germany) in the samples' highest unemployment regions. As a result, the observed unemployed–employed life satisfaction gaps in the Canadian and German samples are partially driven by stronger regional interaction effects.

This paper explores possible reasons behind the cross-national differences in both the observed employment–unemployment well-being gaps and the moderating factors. Individuals' perceptions of job security and prospects play a crucial role. In particular, these perceptions explain why unemployed Germans had significantly lower predicted life satisfaction scores than their otherwise-equal peers in the three other countries. The unique Canadian results on moderating factors may be driven by seasonal employment features, as well as strong rural-to-urban migration in Canada's high unemployment regions.

Nevertheless, as in most studies, there are limitations to these results. In particular, the study overlooked the possibility of reverse causality, e.g., low life satisfaction leads to unemployment. Although the literature suggests that selection effects of unhappy individuals into unemployment seem to be minimal (Winkelmann and Winkelmann 1998; Lucas et al. 2004), the extent to which unemployment is endogenous could be very different across countries. Future comparative studies should address the problem of reverse causality by, for instance, looking into lag and lead effects of unemployment in subjective well-being.

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